CONFIRMATION OF KARIBA-WEED, *SALVINIA MOLESTA* (SALVINIACEAE) IN THE CALCASIEU RIVER BASIN, LOUISIANA

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ABSTRACT

Heavy rains in southwestern Louisiana during July 2012 flushed an immense amount of *Salvinia molesta* into the Calcasieu River near Lake Charles, Louisiana. This is the first confirmed sighting of *S. molesta* in Calcasieu Parish, Louisiana. The source for this infestation is unknown but is likely from a population or populations somewhere in the Calcasieu River basin upriver from the saltwater barrier dam located just north of Lake Charles. Because of the negative ecological and economic impacts that can accrue from this noxious species, the monitoring of this situation will be ongoing.

RESUMEN

Las lluvias torrenciales en el suroeste de Luisiana durante julio de 2012 han sacado una cantidad inmensa de *Salvinia* del Río Calcasieu cerca de Lake Charles, Luisiana. Este es el primer avistamiento confirmado de *Salvinia molesta* en Calcasieu Parish, Luisiana. La fuente de esta infestación es desconocida, pero es probable la procedencia de una o varias poblaciones en algún lugar de la cuenca del río Calcasieu por encima de la barrera de agua salada, ubicada justo al norte de Lake Charles.

As described by Neyland (2011), *Salvinia molesta* Mitchell, kariba-weed, is an introduced aquatic fern with horizontal rhizomes. Fronds are ovate, aquatic, and up to 4 cm long with rows of stiff hairs. Each hair has the appearance of an eggbeater. The submerged leaves are dark brown with root-like fibers. Sporocarps are formed in chains but rarely produce fertile spores. The species inhabits lakes, ponds, marshes, sluggish rivers and streams along the southern tier of states from CA to NC. Plants are sensitive to freezing temperature and elevated salinity.

Native to southeastern Brazil, *Salvinia molesta* has become a serious threat to aquatic systems in the warm-temperate regions of the United States (Jacono et al. 2001). Exponential vegetative growth potential (Mitchell & Tur 1975) and tolerance to environmental stress (Whitman and Room 1991) allows this species to become a noxious weed in much of its range. On July 15, 2012, large numbers of individuals of *Salvinia molesta* were observed floating down the Calcasieu River adjacent to Shell Beach Road along the southern shore of Lake Charles in Calcasieu Parish, LA. This is the first recorded sighting of this species in the Parish.

On July 16, 2012, large numbers of *S. molesta* were observed on the western side of the Calcasieu River along River Road in northern Lake Charles just south of the saltwater barrier dam. Plants were observed in great abundance along the northern shore of Lake Charles on July 17, 2012. Specimens from each of the three locations, including GPS coordinates, were collected and are housed in the McNeese State University Herbarium (MCN).

Because this is the first recorded sighting of *Salvinia molesta* in Calcasieu Parish, the authors were surprised at its great abundance. The stretch of the Calcasieu River where the plants were observed is variably brackish. Sensitive to salinity and flowing water, the plants were not resident along this stretch of the river but were being flushed from a location or locations upriver of Lake Charles. Unusually heavy rainfall in western Louisiana during the first two weeks of July is the probable cause for this flushing. For example, rainfall recorded at Lake Charles from July 1–15 was 33.86 cm (13.33") (National Weather Service Website 2012).

This event generates an important question: where is the source population or populations of *Salvinia molesta*? The Calcasieu River originates in Vernon Parish and meanders generally southward for over 320 km

through Rapides, Allen, Jefferson Davis and Calcasieu parishes until it empties into the Gulf of Mexico in Cameron Parish. Of those north of Calcasieu Parish, only in Jefferson Davis Parish, adjacent to Calcasieu Parish, has *S. molesta* been documented (USDA, NRCS Website 2012). From information supplied by Mark Garland, from USDA, NRCS, a population of *S. molesta* was observed by Vanessa Morgan, research assistant at Portland State University, in *farm ponds* near the vicinity of Fenton, Louisiana, on November 6, 2004. This was confirmed by Scott Schales, biologist at the Louisiana Wildlife and Fisheries Department. However, because no specimen from this observation was collected, the exact location of the reported farm ponds is unknown. Unless these farm ponds drain into the Calcasieu River, either by Bayou Serpent or Little Bayou, these populations are not the specific source of the recent occurrence in Calcasieu River.

Charles Allen, owner of Allen Native Ventures, (pers. comm. 2012) reported that he has observed *Salvinia molesta* in Fullerton Lake, north of Pitkin in Vernon Parish. Fullerton Lake drains into Sixmile Creek which merges with the Whiskey Chitto, a tributary of the Calcasieu River. No specimen and, therefore, no specific collection information exists for this sighting. Additionally, no specimens or records of *S. molesta* from Vernon, Rapides, Allen, Jefferson Davis or Calcasieu parishes were found in a herbarium search from Louisiana State University (LSU), University of Louisiana at Monroe (NLU), University of Louisiana Lafayette (LAF) or McNeese State University.

With the return of drier weather, observations on July 19, 2012 from the original collection sites revealed that individuals of *Salvinia molesta* were no longer floating down the river and many individuals had died after being washed up along the banks. However with the return of heavy rainfall from July 20–22, a new flush of *S. molesta* occurred on the Calcasieu River. Additional specimens from this second flush were collected just upriver from the saltwater barrier dam north of Lake Charles and under the I-10 Bridge near Westlake, LA.

The origin of the *S. molesta* observed in the Calcasieu River remains unclear. Numerous habitats upriver from the saltwater barrier dam in Lake Charles could support populations of *S. molesta*. However, it is clear that *S. molesta* is firmly established at some location or locations in the Calcasieu River basin. Because of the negative ecological and economic impacts that can accrue from this noxious species, we intend to closely monitor the situation and will attempt to locate the original source of infestation.

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